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Pesticide Fact Sheet Number 13: DCNA

(U.S.) Environmental Protection Agency
Washington, DC

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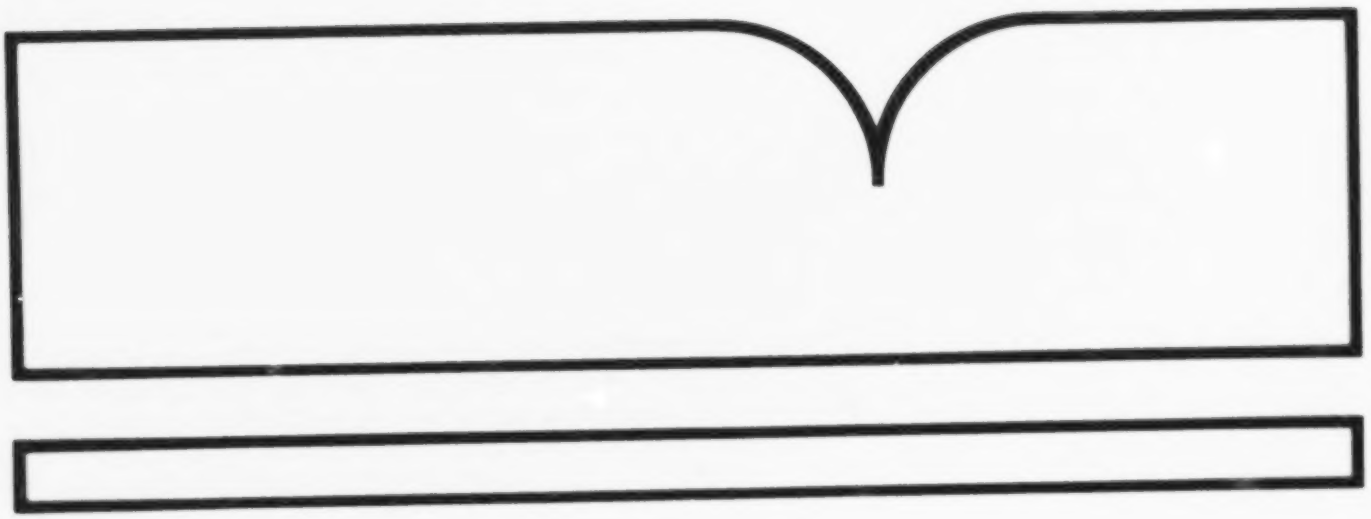

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, Science Findings

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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United States
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Agency

Office of Pesticides and Toxic Substances
Office of Pesticide Programs (TS-766C)
Washington, DC 20460

EPA

Pesticide Fact Sheet

Name of Chemical: DCNA
Reason for Issuance:
Date Issued: Jan. 9, 1984
Fact Sheet Number: 13

1. Description of the Chemical:

Generic name: 2,6-dichloro-4-nitroaniline
Common name: dicloran
Trade name(s): DCNA, botran, ditranil, allisan, and resisan
EPA Shaughnessy code: 031301
Chemical abstracts service (CAS) number: 99-30-9
Year of initial registration: 1961
Pesticide type: Fungicide
Chemical family: Nitroanaline
U.S. and foreign producer: Upjohn Company

2. Use patterns and formulations:

Application sites: DCNA is used to control a variety of pre- and post-harvest diseases on fruit and vegetable crops. Current major use sites include peaches, grapes, lettuce and celery. It is a protectant to ornamentals and vegetable seeds. It is also registered for use on cotton, a number of ornamentals, a seed-piece dip for sweet potatoes, a peanut seed treatment, and in greenhouses on cucumbers, lettuce, rhubarb, and tomatoes.

Types of formulations: Formulated products are 4, 5, 6, 8, 10, 12, 15, 20, 30, 35, or 50% dusts; 48.8 or 75% wettable powders; 9 or 30% flowable concentrates; as 0.5 or 3% ready-to-use liquids; a 3% formulation in fruit wax; and a 0.2% impregnated fruit wrap.
DCNA may be formulated with other pesticides such as captan, benomyl, and parathion. It is not compatable with some oil-based pesticides.

Types and Methods of application: DCNA may be applied as pre-harvest and post-harvest uses on fruit and vegetable crops; seed and ornamental protectant. In the field, DCNA can be applied by ground and aircraft. DCNA can be applied as a post-harvest dip, spray, or dust to some fruits and vegetables and as a protectant to ornamental crops prior to storage and shipment.

Application rates: 1.5 to 30 lb/A.

Usual Carriers: either water or wax as diluent

3. Science Findings:

Summary science statement:
There are extensive data gaps for DCNA. No human toxicological hazards of concern, other than inducement of skin photosensitivity, and possible ocular toxicity, have been identified in studies reviewed by the Agency for this standard. The Agency has no information that indicates continued use will result in any unreasonable adverse effects to man or his environment during the time required to develop the data.

Chemical characteristics:
DCNA is a yellow, crystalline powder. The solubility of DCNA in ethanol is 0.2% at 20°C and its melting point is 192-194°C. The chemical does not present any unusual handling hazards.

Toxicology characteristics:
Acute toxicology studies:
Acute Oral LD_{50} in rats: >10,000 mg/kg, Toxicity category IV
Acute Dermal LD_{50} in rabbits: >2.0 g/kg, Toxicity category III
Acute Inhalation LC_{50} in rats: >2 mg/l, Toxicity category III
DCNA does not induce skin or eye irritation - Toxicity category III
DCNA was found to be a skin sensitizer and may induce phototoxicity due to the presence of aniline in its composition.
Chronic toxicology studies:
There is insufficient data to assess the subchronic dermal or subchronic inhalation hazard
Chronic toxicity in rats: NOEL = 100 ppm: LEL = 3000 ppm
Oncogenicity study in rats: no tumors at 3000 ppm
Teratogenicity in rabbits: no abnormalities at 1000 ppm
Reproduction in rats: NOEL = 100 ppm

Major routes of exposure: Subchronic dermal or respiratory contact

Environmental characteristics:
Data are insufficient to fully assess the environmental fate of DCNA
Ecological characteristics:
Hazards to fish and wildlife:
Avian dietary LC_{50}: Mallard duck - 9500 ppm
Bobwhite quail - 2120 ppm
Fish LC_{50}: >1.08 ppm
Aquatic invertebrates LC_{50}: 2.3 ppm
Potential problems for endangered species: Will be reassessed after review of environmental fate data.
Physiological and biochemical behavioral characteristics:
Mechanism of pesticidal action: Thought to be a non-specific inhibitor of cell division and can effect nuclear stability.
General metabolism in rats: 1.7 and 8 mg/kg body weight was absorbed, no body tissue accumulation was detected.

Tolerance assessment:

List of crops and tolerances (in ppm): apricots (pre and post H) 20, snapbeans 20, blackberries 15, boysenberries 15, carrots (post H) 10, celery 15, sweet cherries (pre and post H) 20, cotton seed 0.1, cucumbers 5, endive 10, garlic 5, grapes 10, kiwifruit (post H) 20, lettuce 10, nectarines (pre and post H) 20, onions 5, peaches (pre and post H) 20, plums (fresh prunes) (pre and post H) 15, potatoes 0.25, raspberries 15, rhubarb 10, sweet potatoes (post H) 10, tomatoes 5.

Tolerance reassessment: Due to the absence of pertinent data, the Agency is unable to complete its reassessment of DCNA tolerances.

4. Summary of Regulatory Position and Rationale:

Use classification: general use

Unique label warning statements: Manufacturing-use labels must contain the statements "Do not discharge into lakes, streams, ponds or public waters unless in accordance with NPDES permit. For guidance contact your regional office of EPA."

5. Summary of Major Data Gaps:

Product chemistry: data due 7/84

- Identity of ingredients
- Statement of composition
- Discussion on formation of contaminants
- Preliminary analysis
- Certification of limits
- Analytical methods
- Odor
- Density, bulk density, or specific gravity
- Solubility
- Vapor pressure
- Dissociation constant
- Octanol/water partition coefficient

Toxicology: studies due 1/88

- Ocular toxicity
- Photosensitization
- 21-day subchronic dermal
- Oncogenicity in mouse (in progress)
- Teratogenicity (in progress)
- Mutagenicity testing

Wildlife and Aquatic organisms: studies due 1/88

- Single-dose oral LD_{50} on one avian species
- Acute 48 hour toxicity study on a freshwater invertebrate
- Fish embryo-larvae and/or aquatic field studies may be required depending on environmental fate data

Environmental Fate: studies due 1/89
- Hydrolysis studies
- Photodegradation studies in water
- Photodegredation studies on soil
- Aerobic soil metabolism study
- Anaerobic soil metabolism study
- Leaching and adsorption/desorption studies
- Laboratory volatility studies
- Terrestrial field dissipation studies
- Longterm field dissipation studies
- Confined accumulation studies on rotational crops
- Laboratory studies of pesticide accumulation in fish

Rentry Protection:
- Data requirement pending on results of toxicological testing

Residue Chemistry: studies due 1/88
- Nature of residue for plants and animals
- Residue analytical method for animals
- Storage stability data
- Crop field trials for potatoes, sweet potatoes, onions, apricots, cherries, nectarines, peaches, plums, blackberries, boysenberries, raspberries, kiwi
- Processed food/feed for potatoes, tomatoes, cottonseed

6. Contact person at EPA

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